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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/600,391

06/20/2003

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EXAMINER

NAGPAUL, JYOTI

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

05/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/600,391	Applicant(s) NICKEL ET AL.	
	Examiner JYOTI NAGPAUL	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-16 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-16 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment filed on March 14, 2008 has been acknowledged. Claims 1-2, 4-16 and 26 are pending.

Response to Amendment

Rejection of Claims 1-2, 4-6, 12 and 26 as being unpatentable over Cote in view of Taketomo (US 4671809) has been withdrawn in light of applicants' amendments.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 1** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants' recite "whereby said film strips define a distance between the individual capillaries in the bundle and also form baffle plates within the bundle". It is unclear as to what the baffle plates are. Also, are the film strips the same as baffle plates? It is unclear from the claim language as to what the applicants' are intending to claim. Clarification is needed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1, 4-5, 8-11 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalthod (US 5,779,897) in view of McGinnis (US 3690465) and further in view of Prasad (US 5352361).

As for claims 1, 4-5, 8-11, Kalthod teaches a fluid separation module comprising at least one bundle of ceramic capillaries (27). (See Col. 9, Lines 9-12) The capillaries (27) having an external diameter in the range of 0.3 mm to 10mm and internal diameter in the range of 0.1 mm to 8mm. (See Col. 5, Lines 60-64) Kalthod further teaches

Kalthod fails to teach a distance is established between the capillaries by attaching film strips to the capillaries while the capillaries are parallel, winding the capillaries into a bundle and joining the ending of the bundle of capillaries in an end plate through which their ending pass at a defined distance from each other. The film strips define a distance between the individual capillaries in the bundle and also form baffle plates within the bundle.

McGinnis teaches the making of a separation module. McGinnis teaches capillaries (14) that are laid side by side in a spaced apart relationship. The capillaries are wound into a bundle and then joined at the ending of the bundle of capillaries (14) in an end plate/perforated plates (19). (See Figures 1 and 9-11) (See Col. 14, Lines 12-15)

The fabrication of capillary bundles in the method described by McGinnis is conventionally known in the art. Kalthod further discloses introducing the filament in a filament winding machine and then into a mandrel as it is rotated. (See Col. 5, Lines 6-8) Thus it would have been obvious to one having ordinary skill in the art to fabricate the device of Kalthod as described in McGinnis to achieve the predictable results of proper alignment of the hollow fibers and therefore an overall efficient system.

Kalthod and McGinnis both fail to teach attaching film strips while the capillaries are parallel and further, the film strips define a distance between the individual capillaries in the bundle and also form baffle plates within the bundle.

Prasad teaches separation module comprising baffle plates (3a) for maintaining the distance between the individual capillaries to promote radial flow of fluids through the hollow fiber bundle. (See Col. 2, Lines 28-30)

Thus it would have been obvious to one having ordinary skill in the art to provide the device of Kalthod in view of McGinnis with baffle plates while the capillaries are parallel to achieve the predictable results of promoting radial flow of fluids through the hollow fiber bundle.

7. **Claims 2, 6-7 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalthod (US 5,779,897) in view of McGinnis (US 3690465) and further in view of Prasad (US 5352361) as applied to claim 5 above, and further in view of Taketomo.

Refer above for the teachings of Kalthod, McGinnis and Prasad.

Kalthod, McGinnis and Prasad fail to teach the distance is less than 3 mm.

Taketomo teaches a separation module. The module comprises a sheet/spacers (26) at several points along the length of the capillaries so that the individual capillaries are spaced apart by a small distance. (See Figure 10 and Col. 1, Lines 50-55) The module further teaches the bottom of the capillaries is securely embedded in a support/end plate (29) for "close packing" in order to provide a sufficient space between each capillary and thus ensuring a gas passage from the outside to the inside of the capillary. (See Col. 2, Lines 5-20)

It would have been obvious to a person of ordinary skill in the art to provide end plates as disclosed in Taketomo to provide a sufficient space between each capillary and thus ensuring a gas passage from the outside to the inside of the capillary.

8. **Claims 13-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalthod (US 5,779,897) in view of McGinnis (US 3690465) and further in view of Prasad (US 5352361) as applied to claim 1 above, and further in view of Shay (US 4310607).

Refer above for the teachings of Kalthod, McGinnis and Prasad.

Kalthod, McGinnis and Prasad fail to teach the housing consists of stainless steal.

Shay teaches a separator bundle comprising a bundle of capillary fibers. Shay further teaches a stainless steel housing (34) that encloses the bundle of capillary fibers.

It would have been obvious to a person of ordinary skill in the art to modify the device of Kalthod in view of McGinnis to provide a stainless steel housing enclosing the bundle in order to use the separator module in a battery cell as disclosed in Shay.

9. **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalthod (US 5,779,897) in view of McGinnis (US 3690465) and further in view of Prasad (US 5352361) as applied to claim 1 above, and further in view of Bellhouse (US 6217764).

Refer above for the teachings of Kalthod, McGinnis and Prasad.

Kalthod, McGinnis and Prasad fail to teach a ceramic housing.

Bellhouse teaches filtration module. Bellhouse teaches a filter comprising a large number of parallel capillaries in a highly porous block of support material/housing. (See Col. 1, Lines 27-29)

It would have been obvious to a person of ordinary skill in the art to modify the device of Kalthod in view of McGinnis to provide a ceramic housing as disclosed in Bellhouse in order ensure radial mixing and hence optimum filtration.

10. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalthod (US 5,779,897) in view of McGinnis (US 3690465) and further in view of Prasad (US 5352361) as applied to claim 1 above, and further in view of Dobo (US 4268278).

Refer above for the teachings of Kalthod, McGinnis and Prasad.

Kalthod, McGinnis and Prasad fail to teach a separation module comprising a catalyst.

Dobo teaches fluid separation module comprising hollow fibers. The separation module further comprising a catalyst. (See Col. 1, Lines 1-65)

It would have been obvious to a person of ordinary skill in the art to modify the device of Kalthod in view of McGinnis to provide a separation module with a catalyst in order to obtain desired reactions and enhance separation as disclosed in Dobo.

Response to Arguments

11. Applicant's arguments with respect to claims 1-2, 4-16 and 26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JYOTI NAGPAUL whose telephone number is (571)272-1273. The examiner can normally be reached on Monday thru Friday (10:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1797

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JN

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797